

# Service Manual

## Dishwasher integratable ADG 937/3 S

| Model<br>Version |                               | Page                      |
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|                  | Family                        | Global Shadow<br>Range A3 |

## Technical data

### Dimension

|        |      |    |
|--------|------|----|
| Height | 82.0 | cm |
| Width  | 59.7 | cm |
| Depth  | 55.5 | cm |
| Weight | 52.7 | kg |

### Wooden door

|                                                  |     |    |
|--------------------------------------------------|-----|----|
| Thickness min.                                   | 16  | mm |
| Thickness max.                                   | 20  | mm |
| Width min.                                       | 592 | mm |
| Width max.                                       | 595 | mm |
| Height min.                                      | 515 | mm |
| Height max.                                      | 600 | mm |
| Weight max.                                      | 5.5 | kg |
| Max. stick out over lower edge of appliance door | 92  | mm |
| Height of plinth min.                            | 93  | mm |

### Electronic boards

|                |                     |
|----------------|---------------------|
| Service boards | see spare part list |
| Serial boards  |                     |
| UB             | 4619 720 791 51     |
| CB             | 094811              |
| Dataset        | 094801              |

### Succession of programs

|            |                     |
|------------|---------------------|
| Programs   | see program diagram |
| Succession | 1a - 3b - 6a        |

### Program information

Start indicator

### Volume (normal program)

| Water                | Volume | Level  |
|----------------------|--------|--------|
| Regeneration         | 0.3 l  | 15 mm  |
| Back rinse 3x        | 1.0 l  | 68 mm  |
| Prewash              | 4.8 l  | 122 mm |
| Main wash            | 4.5 l  | 121 mm |
| Intermediate rinse 1 | 4.0 l  | 120 mm |
| Clear rinse          | 4.0 l  | 120 mm |
| Safety / overflow    | 8.5 l  | 141 mm |

### Measuring the level

Remove the coarse sieve, put in a measuring meter into the sump, measure the height of the water level.

### Detergent max.

|                |       |                 |
|----------------|-------|-----------------|
| Pre-wash       | 10    | cm <sup>3</sup> |
| Main-wash      | 45    | cm <sup>3</sup> |
| Rinse aid      | 125   | cm <sup>3</sup> |
| 6 Dosage steps | 1 - 6 | ml              |

### Water softener

|                     |     |                 |
|---------------------|-----|-----------------|
| Salt container      | 2   | kg              |
| Resin container     | 900 | cm <sup>3</sup> |
| Regeneration dosage | 300 | cm <sup>3</sup> |

### Water pressure

|                     |        |     |
|---------------------|--------|-----|
| Inlet pressure      | 0.3-10 | bar |
| Spray pump pressure | 0.4    | bar |

### Rotations

|                  |         |     |
|------------------|---------|-----|
| Spray pump motor | 2800    | RPM |
| Drain pump motor | 3000    | RPM |
| Spray arm lower  | 20 - 40 | RPM |
| Spray arm upper  | 25 - 35 | RPM |
| Ceiling rotor    | 45 - 65 | RPM |

### Flow rates / Inlet volume

|                                              |      |       |
|----------------------------------------------|------|-------|
| Flow meter (at 0.3 bar = quantity 1.1 l/min) | 208  | lpm   |
| Spray pump                                   | ~ 70 | l/min |
| Drain pump                                   | 16   | l/min |
| Pump height max.                             | 1.1  | m     |
| Inlet valve                                  | 4.5  | l/min |
| Spray arm lower                              | 33   | l/min |
| Spray arm upper                              | 27   | l/min |
| Ceiling rotor                                | 10   | l/min |

### Electrical data

#### Base data

|             |         |    |
|-------------|---------|----|
| Voltage     | 220/230 | V  |
| Frequency   | 50      | Hz |
| Total power | 2.0-2.2 | kW |
| Fuse        | 10      | A  |

#### Motor

#### Spray pump motor

|                   |         |     |
|-------------------|---------|-----|
| Voltage           | 220/230 | V   |
| Power consumption | 160     | W   |
| HI                | 81      | Ω   |
| HA                | 44      | Ω   |
| Capacitor         | 4       | μ F |

**Technical data****Drain pump motor**

|                   |         |          |
|-------------------|---------|----------|
| Voltage           | 220/240 | V        |
| Power consumption | 30      | W        |
| Resistance        | 146     | $\Omega$ |

**Heating****1 Element system**

|                                 |           |          |
|---------------------------------|-----------|----------|
| Voltage                         | 220/230   | V        |
| Power consumption               | 1.87/2.04 | kW       |
| Resistance                      | 24.5      | $\Omega$ |
| Heating speed                   | ~ 2.0     | °C/min   |
| Temperature on surface          | ~ 115     | °C       |
| Safety thermostat<br>self reset | 85        | °C       |

**Water valves****Single valve at inlet hose**

|            |         |            |
|------------|---------|------------|
| Voltage    | 220/240 | V          |
| Frequency  | 50/60   | Hz         |
| Resistance | 3.76    | k $\Omega$ |

**Regenerating valve**

|            |         |            |
|------------|---------|------------|
| Voltage    | 220/240 | V          |
| Frequency  | 50/60   | Hz         |
| Resistance | 3.13    | k $\Omega$ |

**Coil of dispenser**

|            |         |            |
|------------|---------|------------|
| Voltage    | 220/240 | V          |
| Frequency  | 50/60   | Hz         |
| Resistance | 1.5     | k $\Omega$ |

**Reedcontact**

flow meter

**NTC**

|       |    |            |
|-------|----|------------|
| 15 °C | 75 | k $\Omega$ |
| 20 °C | 62 | k $\Omega$ |
| 30 °C | 43 | k $\Omega$ |
| 40 °C | 28 | k $\Omega$ |
| 50 °C | 19 | k $\Omega$ |
| 60 °C | 13 | k $\Omega$ |
| 70 °C | 9  | k $\Omega$ |
| 80 °C | 6  | k $\Omega$ |
| 85 °C | 5  | k $\Omega$ |

**Regeneration**

|                                      |        |                 |
|--------------------------------------|--------|-----------------|
| Volume                               | 300    | cm <sup>3</sup> |
| Position O<br>after wash cycles      | 10     |                 |
| water hardness                       | 0-60   | °dh             |
|                                      | 0-10.7 | mmol/l          |
|                                      | 0-107  | °Fh             |
| Salt consumption for<br>regeneration | 77     | g               |
| Number of cycles with<br>2 kg salt   | 26     |                 |

## Spare part list

**Model**  
**Service No.**  
**Version**

**ADG 937/3 S**  
**854293701430**  
**854293701430**

| Pos. No. | 12NC Code             | Description                    |
|----------|-----------------------|--------------------------------|
| 003 0    | <b>4812 440 19382</b> | Traverse                       |
| 004 0    | <b>4812 440 18952</b> | Drip tray assy                 |
| 004 1    | <b>4812 401 18402</b> | Holder                         |
| 011 0    | <b>4812 505 18369</b> | Foot long                      |
| 022 0    | <b>4812 440 19398</b> | Side panel left                |
| 022 1    | <b>4812 440 19397</b> | Side panel right               |
| 022 2    | <b>4812 440 18953</b> | Spacer                         |
| 024 0    | <b>4812 440 19463</b> | Panel, rear                    |
| 040 1    | <b>4812 417 18774</b> | Hinge left                     |
| 040 2    | <b>4812 417 18773</b> | Hinge right                    |
| 044 0    | <b>4812 492 38362</b> | Spring f.door                  |
| 047 0    | <b>4812 404 48591</b> | Brake f.door                   |
| 047 1    | <b>4812 401 18397</b> | Band,brake                     |
| 047 2    | <b>4812 404 68023</b> | Hook                           |
| 053 0    | <b>4819 440 19906</b> | Plinth service kit NoThermood. |
| 103 0    | <b>4812 440 18986</b> | Door outer to 99/01            |
| 103 0    | <b>4812 440 19478</b> | Door outer from 99/01          |
| 105 0    | <b>4812 404 48611</b> | Fastener door                  |
| 105 2    | <b>4812 505 68004</b> | Clip                           |
| 105 3    | <b>4812 404 48633</b> | Fastener                       |
| 120 0    | <b>4812 440 19456</b> | Door,inner                     |
| 120 1    | <b>4812 440 18969</b> | Batten                         |
| 130 0    | <b>4812 417 58361</b> | Tilt lock                      |
| 131 0    | <b>4812 401 18416</b> | Hook lock                      |
| 175 3    | <b>4812 466 68532</b> | Batten to 99/01                |
| 175 3    | <b>4812 466 68572</b> | Batten from 99/01              |
| 191 0    | <b>4812 466 68564</b> | Gasket door                    |
| 192 0    | <b>4812 466 68467</b> | Gasket, door lower             |
| 241 0    | <b>4812 458 18913</b> | Basket upper/straight          |
| 241 1    | <b>4812 458 18324</b> | Holder cups right white        |
| 241 3    | <b>4812 528 88068</b> | Wheel,basket upper (set)       |
| 241 8    | <b>4812 466 68553</b> | Spacer cap set                 |
| 241 9    | <b>4812 528 88075</b> | Wheel,basket basket upper      |
| 242 0    | <b>4812 458 18919</b> | Basket lower cpl.              |
| 242 1    | <b>4812 528 88069</b> | Wheel,basket lower             |
| 242 4    | <b>4812 466 48059</b> | Fixation                       |
| 243 0    | <b>4812 458 18272</b> | Basket cutlery                 |
| 261 0    | <b>4819 462 38271</b> | Rail telescope, inner          |
| 261 1    | <b>4819 404 48819</b> | Cap rail                       |
| 261 2    | <b>4812 462 78995</b> | Cap rail ahead                 |
| 263 0    | <b>4819 520 18013</b> | Ball cage cpl.                 |
| 263 1    | <b>4812 520 48001</b> | Ball Niro 8 D                  |
| 301 0    | <b>4812 453 70246</b> | Control panel silver           |
| 322 0    | <b>4812 453 70251</b> | Insert panel cpl.              |
| 332 5    | <b>4812 410 28556</b> | Cap f.beater                   |
| 400 0    | <b>4812 361 58126</b> | Motor + spray pump cpl.        |
| 405 0    | <b>4812 360 18371</b> | Spray pump                     |
| 405 1    | <b>4819 515 28158</b> | Gasket                         |
| 420 0    | <b>4812 121 18132</b> | Capacitor                      |
| 421 0    | <b>4812 121 18161</b> | Interf.filter                  |
| 430 0    | <b>4812 360 18357</b> | Pump,draining                  |
| 430 1    | <b>4812 466 68506</b> | Shaft seal                     |
| 450 0    | <b>4812 259 28684</b> | Heating element                |
| 480 0    | <b>4812 321 28384</b> | Cable harness set              |
| 480 1    | <b>4812 321 28371</b> | Cable                          |

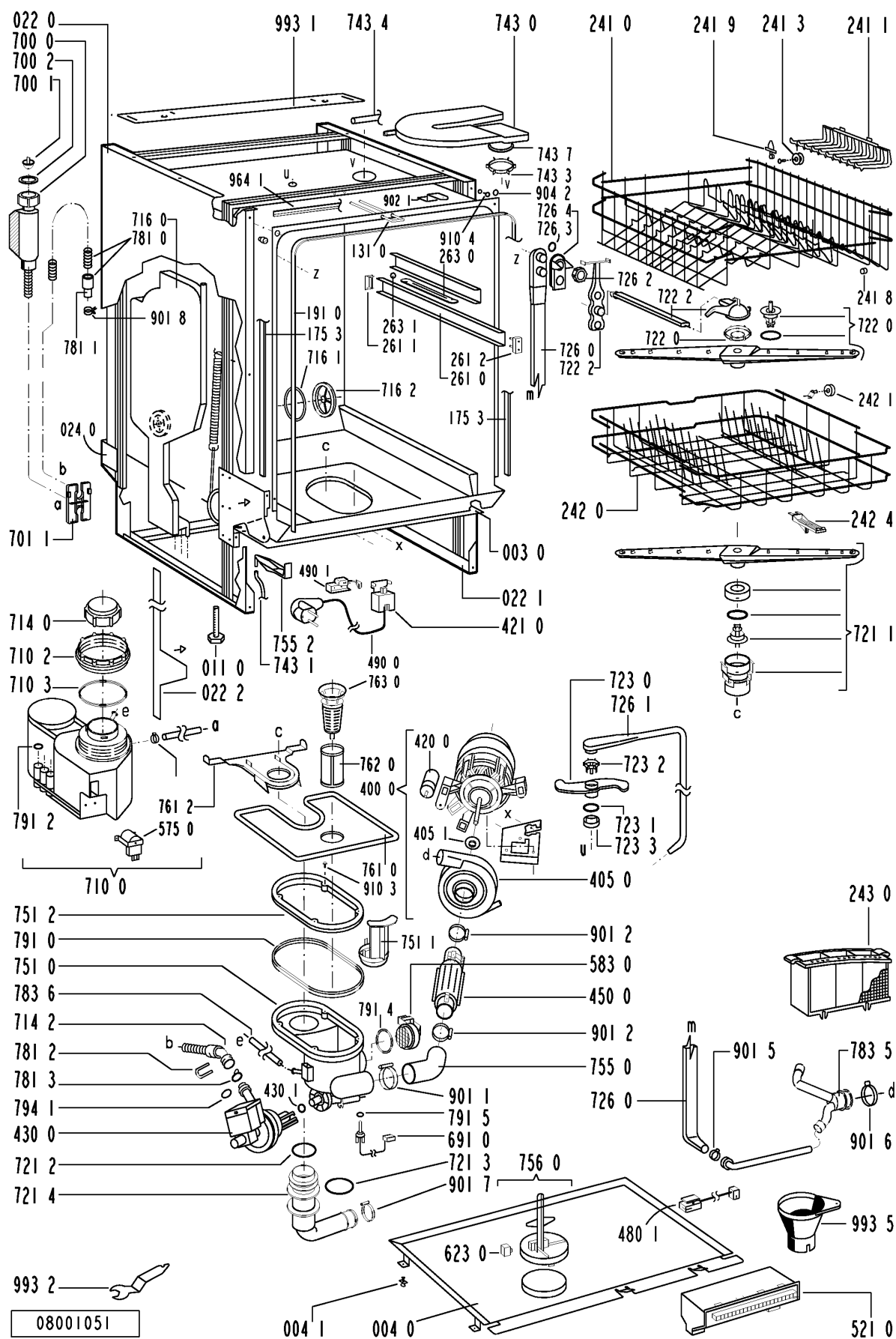
| Pos. No. | 12NC Code             | Description                |
|----------|-----------------------|----------------------------|
| 480 3    | <b>4812 401 18418</b> | Protector f.wiring         |
| 490 0    | <b>4819 321 18136</b> | Cable,mains 2m             |
| 490 1    | <b>4812 321 28367</b> | Strain relief              |
| 521 0    | <b>4812 214 78263</b> | Control board (CB)         |
| 575 0    | <b>4812 281 28361</b> | Regen.valve                |
| 583 0    | <b>4812 271 28355</b> | Switch diaphragm           |
| 620 0    | <b>4812 218 38066</b> | User board (UB)            |
| 623 0    | <b>4812 271 38356</b> | Microswitch                |
| 633 0    | <b>4812 271 38355</b> | Microswitch door           |
| 680 0    | <b>4812 418 68154</b> | Combidosage                |
| 680 1    | <b>4812 466 68495</b> | Gasket                     |
| 681 1    | <b>4812 466 68497</b> | Gasket                     |
| 681 2    | <b>4812 440 18975</b> | Flap                       |
| 682 0    | <b>4812 466 68496</b> | Gasket                     |
| 691 0    | <b>4812 282 68012</b> | Feeler NTC                 |
| 700 0    | <b>4812 530 28804</b> | Hose, inlet aqua stop 4,2m |
| 700 0    | <b>4812 530 28848</b> | Hose, inlet aqua stop 2m   |
| 700 1    | <b>4812 480 48019</b> | Sieve                      |
| 700 2    | <b>4812 520 58002</b> | Gasket set                 |
| 701 1    | <b>4812 310 18153</b> | Yoke clamp set             |
| 710 0    | <b>4812 418 68128</b> | Monoblock                  |
| 710 2    | <b>4819 310 38536</b> | Threaded ring              |
| 710 3    | <b>4819 466 69562</b> | Gasket set                 |
| 714 0    | <b>4812 462 79643</b> | Threaded cap               |
| 714 2    | <b>4812 440 18963</b> | Cabinet non-return flap    |
| 716 0    | <b>4812 418 68147</b> | Reg.dosage                 |
| 716 1    | <b>4812 466 68475</b> | Gasket                     |
| 716 2    | <b>4812 462 78994</b> | Cover                      |
| 721 1    | <b>4812 360 68061</b> | Spray arm lower. cpl.      |
| 721 2    | <b>4812 466 68491</b> | Gasket 25x2,3B             |
| 721 3    | <b>4812 466 68558</b> | Gasket 30x3,0              |
| 721 4    | <b>4812 440 19455</b> | Flange                     |
| 722 0    | <b>4812 360 68044</b> | Spray arm upper            |
| 722 2    | <b>4812 360 68056</b> | Hub upper straight cpl.    |
| 723 0    | <b>4812 360 68049</b> | Spray arm ceiling          |
| 723 1    | <b>4812 466 68483</b> | Gasket                     |
| 723 2    | <b>4812 404 48597</b> | Clip,fix spray arm         |
| 723 3    | <b>4812 505 18362</b> | Screwed joint              |
| 726 0    | <b>4812 530 28786</b> | Tube                       |
| 726 1    | <b>4812 530 28787</b> | Tube                       |
| 726 2    | <b>4812 505 18358</b> | Nut                        |
| 726 3    | <b>4812 466 68512</b> | Gasket                     |
| 726 4    | <b>4812 462 79633</b> | Centering                  |
| 743 0    | <b>4812 511 48171</b> | Capacitor                  |
| 743 1    | <b>4812 530 28102</b> | Hose, inlet                |
| 743 3    | <b>4812 505 18364</b> | Nut                        |
| 743 4    | <b>4812 530 28807</b> | Hose 9x1,5x270+10          |
| 743 7    | <b>4812 466 68514</b> | Gasket                     |
| 751 0    | <b>4812 418 18205</b> | Water collector            |
| 751 1    | <b>4812 418 18203</b> | Water guide                |
| 751 2    | <b>4812 440 19454</b> | Fastener frame             |
| 755 0    | <b>4812 530 28849</b> | Bend                       |
| 755 2    | <b>4812 530 48148</b> | Tray,leak                  |
| 756 0    | <b>4812 360 58099</b> | Floater                    |
| 761 0    | <b>4812 480 58082</b> | Sieve fine                 |

## Spare part list

**Model** ADG 937/3 S  
**Service No.** 854293701430  
**Version** 854293701430

| Pos. No. | 12NC Code             | Description                     |
|----------|-----------------------|---------------------------------|
| 761 2    | <b>4812 418 18204</b> | Cover sieve                     |
| 762 0    | <b>4812 480 58084</b> | Microfilter                     |
| 763 0    | <b>4812 480 58083</b> | Sieve coarse                    |
| 781 0    | <b>4812 530 28737</b> | Hose,draining                   |
| 781 1    | <b>4819 530 28286</b> | Sleeve hose                     |
| 781 2    | <b>4819 492 68405</b> | Clip f.non-return valve         |
| 781 3    | <b>4812 281 28364</b> | Flap non-return                 |
| 783 5    | <b>4812 530 78028</b> | Distributor                     |
| 783 6    | <b>4812 530 28796</b> | Hose 10x3x180+10                |
| 791 0    | <b>4812 532 68067</b> | Gasket                          |
| 791 2    | <b>4812 530 58093</b> | Gasket                          |
| 791 4    | <b>4812 466 68503</b> | Gasket                          |
| 791 5    | <b>4812 466 68504</b> | Gasket                          |
| 794 1    | <b>4819 530 58032</b> | Gasket 20x2,5                   |
| 901 0    | <b>4822 401 10492</b> | Clamp,hose 14-24 mm             |
| 901 1    | <b>4812 401 18424</b> | Strap 050,0                     |
| 901 2    | <b>4812 401 18157</b> | Strap 32-50/9 C61               |
| 901 5    | <b>4812 401 48573</b> | Strap 028,6                     |
| 901 6    | <b>4812 401 48574</b> | Strap 038,1                     |
| 901 7    | <b>4812 401 18427</b> | Strap 031,6                     |
| 901 8    | <b>4812 401 18075</b> | Strap 20-32/9 mm                |
| 902 1    | <b>4812 466 78361</b> | Fastener f.built-in models      |
| 902 2    | <b>4812 404 78241</b> | Holder                          |
| 904 2    | <b>4812 462 79635</b> | Cover WH 3,5x5 to 99/01         |
| 904 2    | <b>4812 462 79657</b> | Cover BK 3,5x5 from 99/01       |
| 904 4    | <b>4812 462 79659</b> | Threaded cap                    |
| 910 1    | <b>4812 502 18394</b> | Screw 3,5x14-H                  |
| 910 2    | <b>4812 502 18363</b> | Screw 4,0x12-H                  |
| 910 3    | <b>4812 502 18389</b> | Screw NIRO A2                   |
| 910 4    | <b>4812 502 18386</b> | Screw 3,5x8-TORX T15            |
| 910 5    | <b>4812 502 18393</b> | Screw 3,5x9-1 Tx15              |
| 910 7    | <b>4812 502 18397</b> | Screw INOX A2 M 5X12            |
| 964 1    | <b>4812 466 68511</b> | Gasket housing upper to 99/01   |
| 964 1    | <b>4812 466 68573</b> | Gasket housing upper from 99/01 |
| 993 1    | <b>4812 466 78018</b> | Foil protection                 |
| 993 2    | <b>4812 404 48609</b> | Socket wrenc foot               |
| 993 5    | <b>4822 532 80216</b> | Funnel salt                     |

## Exploded view



08001051

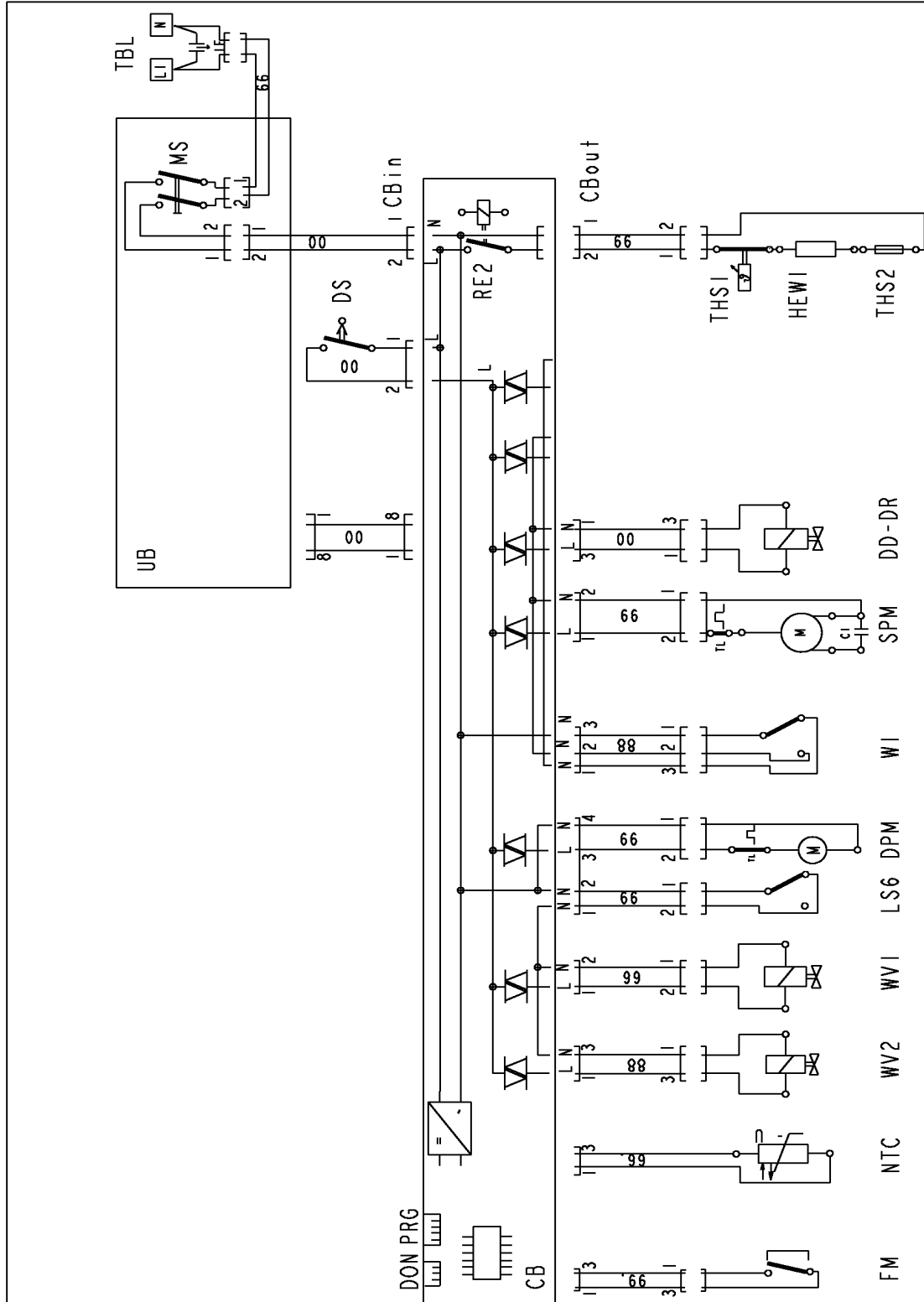
This diagram illustrates the exploded view of a Whirlpool refrigerator door assembly. The components are identified by the following part numbers:

- 681 1**: Top hinge pin
- 681 2**: Top hinge pin
- 682 0**: Top hinge bracket
- 130 0**: Hinge pin
- 633 0**: Hinge pin
- 322 0**: Hinge pin
- 620 0**: Hinge pin
- 480 0**: Hinge pin
- 332 5**: Hinge pin
- 301 0**: Hinge pin
- 105 3**: Hinge pin
- 680 1**: Hinge pin
- 680 0**: Hinge pin
- 904 4**: Hinge pin
- 910 1**: Hinge pin
- 910 5**: Hinge pin
- 047 2**: Hinge pin
- 910 1**: Hinge pin
- 910 7**: Hinge pin
- 044 0**: Hinge pin
- 910 7**: Hinge pin
- 120 0**: Hinge pin
- 192 0**: Hinge pin
- 047 1**: Hinge pin
- 047 0**: Hinge pin
- 040 1**: Hinge pin
- 040 2**: Hinge pin
- 120 1**: Hinge pin
- 480 3**: Hinge pin
- 902 2**: Hinge pin
- 053 0**: Hinge pin
- 105 2**: Hinge pin
- 105 0**: Hinge pin
- 103 0**: Hinge pin

The diagram shows the door panel (103 0) with various hinges (047 0, 047 1, 047 2) and pins (681 1, 681 2, 682 0, 130 0, 633 0, 322 0, 620 0, 480 0, 332 5, 301 0, 105 3, 680 1, 680 0, 904 4, 910 1, 910 5, 047 2, 910 1, 910 7, 044 0, 910 7, 120 0, 192 0, 047 1, 047 0, 040 1, 040 2, 120 1, 480 3, 902 2, 053 0, 105 2, 105 0, 103 0). The door panel is shown in an exploded view, indicating its assembly with the hinges and pins. The Whirlpool logo is visible on the door panel.

08001052

## Circuit diagram



4619 720 87521

|       |                            |
|-------|----------------------------|
| C1    | Capacitor                  |
| CB    | Control board              |
| DB    | Display board              |
| DLB   | Timerswitch Delay          |
| DPM   | Drain pump motor           |
| DD    | Cleaning agent dosage      |
| DON   | Turbidity sensor           |
| DR    | Final rinse dosage         |
| DS    | Door switch                |
| FM    | Flow meter                 |
| HEWI  | Heating                    |
| IF    | Interference filter        |
| LS6   | Water leakage switch       |
| L     | Line                       |
| MS    | Main switch                |
| NTC   | Thermostat temp. sensor    |
| N     | Neutral                    |
| PRG   | Plug to program            |
| RV    | Water hardness switch      |
| RE2   | Heating relay              |
| RR SA | Reed relay salt            |
| RR RA | Reed relay rinsaid         |
| SAB   | Sprayam blocked            |
| SPM   | Sprayam motor              |
| THS   | Safety thermostat          |
| THS 2 | Fuse                       |
| TBL   | Power supply terminal      |
| TL    | Winding protective contact |
| UB    | User board                 |
| VM    | Fan ventilator             |
| WV1   | Water inlet valve          |
| WV2   | Water regenerating valve   |
| WI    | Water indicator            |
| ZW    | Zone washing               |
| 00    | black                      |
| 66    | blue                       |
| 88    | grey                       |
| 99    | white                      |

Connector Rast 2.5 on CB:

red marked: left hand side  
black marked: right hand side

## Program diagram

☐ no program function

☒ contact or triac closed

FM... amount of water

t2 heating time up to temp.

t3 draining time up to the waterindicator is low

| function of the machine          |  | contacts                              |   |   |   |   |   |   |   |   |   | program table                |   |   |   |   |   |   |   |   |       |
|----------------------------------|--|---------------------------------------|---|---|---|---|---|---|---|---|---|------------------------------|---|---|---|---|---|---|---|---|-------|
|                                  |  | Startposition for all Progr. draining | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Program Sequence LEDs        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9     |
| filling + draining (1 lit.)      |  | 2                                     |   |   |   |   |   |   |   |   |   | Sensor intensive             |   |   |   |   |   |   |   |   | 9     |
| pause                            |  | 3                                     |   |   |   |   |   |   |   |   |   | Sensor light                 |   |   |   |   |   |   |   |   | 8     |
| filling + draining (1 lit.)      |  | 4                                     |   |   |   |   |   |   |   |   |   | Intensivprogram 70°C         |   |   |   |   |   |   |   |   | 7a    |
| pause                            |  | 5                                     |   |   |   |   |   |   |   |   |   | Hybrid Program 65°C          |   |   |   |   |   |   |   |   | 6b    |
| filling + draining (1 lit.)      |  | 6                                     |   |   |   |   |   |   |   |   |   | Normal Program 65°C          |   |   |   |   |   |   |   |   | 6a    |
| pause                            |  | 7                                     |   |   |   |   |   |   |   |   |   | Daily Program 65°C           |   |   |   |   |   |   |   |   | 5a    |
| draining                         |  | 8                                     |   |   |   |   |   |   |   |   |   | BIO-ECO Program 50°C BK / WH |   |   |   |   |   |   |   |   | 4d    |
| filling - rinsing                |  | 9                                     |   |   |   |   |   |   |   |   |   | BIO-ECO Program 50°C WH      |   |   |   |   |   |   |   |   | 4b    |
| rinsing - heating                |  | 10                                    |   |   |   |   |   |   |   |   |   | BIO-ECO Program 50°C BK      |   |   |   |   |   |   |   |   | 4a    |
| rinsing                          |  | 11                                    |   |   |   |   |   |   |   |   |   | Rapid Program 50°C / 40°C    |   |   |   |   |   |   |   |   | 3a/3b |
| rinsing - draining               |  | 12                                    |   |   |   |   |   |   |   |   |   | Delicate Program 40°C        |   |   |   |   |   |   |   |   | 2a    |
| filling - rinsing                |  | 13                                    |   |   |   |   |   |   |   |   |   | Prewash Program cold         |   |   |   |   |   |   |   |   | 1a    |
| rinsing - dos. detergent         |  | 14                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing - heating                |  | 15                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing                          |  | 16                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing - heating                |  | 17                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing                          |  | 18                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing - draining               |  | 19                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| filling - rinsing                |  | 20                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing                          |  | 21                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing - draining               |  | 22                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| filling - rinsing                |  | 23                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing                          |  | 24                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing - draining               |  | 25                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| filling - rinsing                |  | 26                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing - heating                |  | 27                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing - dos. rinse aid + heat  |  | 28                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing - heating                |  | 29                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing - dos. rinse aid + heat  |  | 30                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing - heating                |  | 31                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| rinsing                          |  | 32                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| draining                         |  | 33                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| drying - without Fan             |  | 34                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| drying - regenerating            |  | 35                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| drying - regenerating - draining |  | 36                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| drying - regenerating            |  | 37                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| drying - regenerating - filling  |  | 38                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| drying - regenerating            |  | 39                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| drying - regenerating - filling  |  | 40                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| drying - draining                |  | 41                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| drying                           |  | 42                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| drying - draining                |  | 43                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |
| End                              |  | 44                                    |   |   |   |   |   |   |   |   |   |                              |   |   |   |   |   |   |   |   |       |

| function of the machine      |  | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|------------------------------|--|----|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| draining                     |  | 1  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| filling + draining (1 lit.)  |  | 2  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| pause                        |  | 3  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| filling + draining (1 lit.)  |  | 4  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| pause                        |  | 5  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| filling + draining (1 lit.)  |  | 6  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| pause                        |  | 7  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| draining                     |  | 8  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| filling - rinsing            |  | 9  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| pause - dos. detergent       |  | 10 |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| rinsing - heating            |  | 11 |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| regenerating                 |  | 12 |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| regenerating - draining      |  | 13 |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| drying-regenerating-draining |  | 14 |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
| End                          |  | 15 |   |   |   |   |   |   |   |   |    |    |    |    |    |    |

4619 720 87632-1

Only sensor programs.  
d : drain out depends on soil level  
f : water fill if (d) water was drained out before  
h : heating up to 40°C till 70°C depends on soil level  
r : rinsing time 0 min. till 12 min. depends on soil level  
Sensor failure are indicated only in the active test program

## Text/Legend

### **Test procedure for SERVICE-TEST-PROGRAM DOLPHIN full-door dishwashers**

If there is a failure on the appliance, the customer will note it by open the door and the rapidly flashing start LED and by an acoustic „beep“ in a 1 second rhythm.

1. Open the door. When the start LED flashes rapidly, a failure is indicated. Start the passive test program. The stored failure will be indicated (the controlboard CB switch automatically to the program place 1).
2. Check the component.  
Unplug the indicated component from the control board (CB) and check it by using an Ohm-measure equipment.  
If the ohms are not correct, check the cables to the component and check the component itself.
3. Only if there is no reaction when pushing a push button, then test the control board (CB) and the user board (UB) with the test points.
4. At the end of the repair start the appliance and delete the failure. After this, start the test program again to see that the failure is solved.

More details: s. following pages.

### **Attention:**

First unplug the appliance, then set the connection clamps of the volt measurement on the test points.

Danger for short circuit.

Short circuits on components can damage the control board (CB).

If electronic boards are wet, do not switch the appliance on.

For check the appliance, plug in the appliance.

Failures, which occurred during the program will store and indicate by flashing start LED.

Then start the test program without erase the failure before. The failure will indicate.

To erase the failures, you must push the start button longer than 3 seconds.

The failures

|    |                        |
|----|------------------------|
| F1 | NTC break              |
| F2 | water leakage          |
| F9 | continuous water inlet |

are checked and indicated immediately after start of the program.

Therefore these failures have to be solved before starting the active test program.

When these failures are not solved, the active test program does not run.

The electrical components get their voltage via triac from the control board (CB). For testing the volume of voltage the volt meter must be parallel to the component (the component must be connected). If the component is disconnected, then the outcomed voltage from the control board (CB) is reduced.

**After starting a program this program is locked. That means neither by unplugging/switching of the appliance nor by setting an other program, the first setted program can be changed. Changing of the program is only possible by pushing the start button again for longer than 3 sec..**

**On appliances with separate On-Off button the last used program is stored. That means if the customer wants to use the same program again he has only to press the On-button and the Start-button.**

**Attention:** On new service control boards the first service test program is without back rinsing. **Dangerous for overfilling the appliance, in case the appliance is not empty.** By running the test program a second time the back rinsing will be carried out as usual.

**Text/Legend****Handling of failures****F0 Sensor failure**

Will not indicate for the customer. The programs will finish even there is a failure. The Failure is indicated only in the active test program after 10 – 30 second's. The active test program will finish as well, even there is a failure.

If the failure in a sensor program appear, the machine will always choose the highest consumption (best cleaning result).

- None or wrong output from the sensor
- Unlogical or unreal measurement results

Reason:

- Defective electronic of the sensor
- Optoelectrical parts in the sensor defect
- Case of the sensor is very dirty
- Connection between sensor and control board (CB) interrupted

Attention: The failure code will not store.

**F1. NTC break**

Temperature out of the normal value (-3°C till +85°C)

- temperature inside higher than +85°C
- NTC defective
- dishwasher is frozen, less than -3°C

Fill in the appliance a cup of warm water to warm it up before you start it, if the temperature is less than -3°C

**F2. water leakage**

- water is in the drip tray

floaters (LS6) switches off the WV1 and the electronic switches on the DPM till WI reports empty

**F3. heating system defective**

Indicated after app. 11 minutes (1. check after 5 min., after that follow 2 more checks, before the failure is indicate)

- too less heating speed (lower 1,5 °C in 3 min.)
- heating (HEW) defective
- relays (RE2) on control board (CB) is defective
- NTC - resistance fluctuation
- water indicator (WI) defective (is switched off) - spray pump (SPM) is not working

**F4. draining failure**

drain pump starts and after 4 min. the WI detects not empty

- drain pump (DPM) defective
- siphon closed
- control board (CB) defective
- water indicator (WI) defective (is switched on)

**F5. spray arm blocked (leads not to stop the appliance)**

SAB sensor sends less than 10 impulses/min.

- spray arm blocked or not fixed well
- spray pump (SPM) does not work well
- SAB sensor defective

## Text/Legend

- F6. water tap closed (only indicated after start of the active test program)  
water valve (WV1) is switched on but flow meter (FM) sends no impulses (less than 10 imp. in 10 sec.) and the water indicator (WI) is off (empty)
- water tap closed
  - water inlet hose blocked
  - water inlet valve (WV1) defective
  - flow meter (FM) defective (leads to FM failure)
- F7. flow meter failure  
water inlet valve (WV1) is switched on and the water indicator (WI) is on (full).
- flow meter (FM) sends to less impulses (less than 10 imp. in 10 sec.)
  - water tap closed
  - water inlet hose blocked
  - water inlet valve (WV1) defective
  - flow meter (FM) defective
- F8. water level failure  
failure monitored during spray pump is on and the water indicator switches back more than 20 times in 2 min.
- water indicator defective (should switch on after app. 1 litre)
  - sieve blocked
  - water strongly foams
  - pot has turned off and is filled with spray water
  - no stable spray pump (SPM) working
- F9. continuous water inlet  
water inlet valve (WV1) is switched off, water indicator (WI) on, flow meter (FM) sends impulses (more than 10 imp. in 10 sec.)
- water inlet valve (WV1) mechanically not closed
  - triac (CB) permanently switched on. (short circuit)
- reaction: interval 30 sec. draining / 20 sec. tracing

For salt, rinse aid, zone wash valve, sieve valve failure see active test program.

## Text/Legend

**FULL DOOR Appliances FAILURE AND ALARM DISPLAYING CODES**

| Alarm / Failure                       | Failure indication for customer                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | Failure indication within Test Program after a Failure has occurred                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Sensor-break<br/>F 0</b>           |    <br>P1 P2 P3 P4<br>START<br>                                              |  |     (only indicated after start of the active t.p.)<br>P1 P2 P3 P4<br>START<br>                                                                                                                                       |  |
| <b>NTC-break<br/>F 1</b>              |    <br>P1 P2 P3 P4<br>Buzz Long period on Closed Door<br>START<br>           |  |     <br>P1 P2 P3 P4 +<br>BUZ START<br>                                                                                            |  |
| <b>Water Leakage<br/>F 2</b>          |    <br>P1 P2 P3 P4<br>Buzz Long period on Closed Door<br>START<br>           |  |    <br>P1 P2 P3 P4<br>START<br>                                                                                                                                                                                      |  |
| <b>Heating System Failure<br/>F 3</b> |    <br>P1 P2 P3 P4<br>Buzz Long period on Closed Door<br>START<br>         |  |    <br>P1 P2 P3 P4<br>START<br>                                                                                                                                                                                    |  |
| <b>Draining Failure<br/>F 4</b>       |    <br>P1 P2 P3 P4<br>Buzz Long period on Closed Door<br>START<br> |  |    <br>P1 P2 P3 P4<br>START<br>                                                                                                                                                                            |  |
| <b>Water Tap Closed<br/>F 6</b>       |    <br>P1 P2 P3 P4<br>No Buzz<br>START<br>                         |  |    <br>P1 P2 P3 P4<br>START<br> (only indicated after start of the active t.p. Start LED flashed in passive t.p.)<br> |  |
| <b>Flow Meter Failure<br/>F 7</b>     |    <br>P1 P2 P3 P4<br>Buzz Long period on Closed Door<br>START<br> |  |    <br>P1 P2 P3 P4<br>START<br>                                                                                                                                                                            |  |
| <b>Water Level Failure<br/>F 8</b>    |    <br>P1 P2 P3 P4<br>Buzz Long period on Closed Door<br>START<br> |  |    <br>P1 P2 P3 P4<br>START<br>                                                                                                                                                                            |  |
| <b>Water Continuously On<br/>F 9</b>  |    <br>P1 P2 P3 P4<br>Buzz Long period on Closed Door<br>START<br> |  |    <br>P1 P2 P3 P4 +<br>BUZ START<br>                                                                                                                                                                      |  |

 Led Flashing    On appliances with only 3-programs the failures in the test program are indicated by only flashing the 3 program LED's and the buzzer.  
 Led OFF

P1 until P4 :            the first 4 program LED's (seen from left)

The failure will indicate by flashing of the 4 (3) program LED's and by the buzzer „beep“.

## Text/Legend

### **Appliances with only 3 programs have no LED P4**

#### **Passive test program**

The passive test program shows the stored failure. If there is no failure the passive test program runs normal.

#### **Start procedure**

##### **Open the door**

1. Choose programplace 1 (insofar as program 1 was not choosen)
2. Switch off the appliance
3. Push start button and hold it.
4. Switch on the main switch.
5. Finish pushing the start button when the start LED flashes.
6. Failure indication.
7. Repair the failure
8. Solve the failure by pushing the start button for longer than 3 sec.
9. Start the passive testprogram again. If there is no failure detected, test all LED's and after that choose program 1.
10. Finish the passive testprogram by pushing the start button for shorter than 3 sec.
11. Close the door -beep-

##### **Active testprogram starts (see next page)**

Attention:

If you can't start the active test program (Start button don't flash), normally there is one of the following failures detected: F1, F2 or F9.

When these failures are not solved before, the active test program will not run. After solving the failure you must „sign“ (erase) the failure.

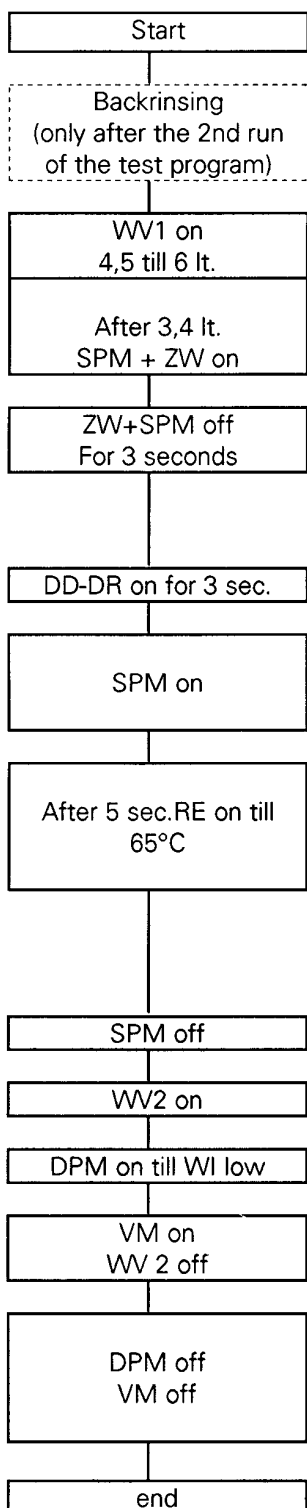
**Flashing more LED's in the test program, or flashing the LED's in an other order which is not described on the page "Handling of failures" and/or occur an acoustic signal, then the cause is one of the following points:**

- During the failures was signed:
  - the zone wash button was pushed (LED's for Start and zone wash are shine).
- The appliance was switched off for a short time, or the door closed for a short time and opened again.

**Solution: Reset the electronic by pushing the start button for more then 3 seconds. After the „beep“ close the door and start the test program again.**

## Text/Legend

### Active test program



### Test procedure

1. Passive test program OK?  
no: repair failure, after that solve the failure and start the passive test program again.  
  
yes: push start button shorter than 3 second's
2. Active test program starts.

### Remarks

The active test program runs to the failure position and stops or, if there is no failure, to the end.

To leave the test program push the start button for longer than 3 second's.

Too less salt or too less rinse aid leads not to the stop of the appliance.

The function of the zone wash valve can only be checked optically.  
A defect leads to a not stable SPM pressure.

### Attention:

If you can't start the active test program (Start button don't flash), normally there is one of the following failures detected: F1, F2 or F9

When these failures are not solved before, the active test program will not run. After solving the failure you must „sign“ (erase) the failure.

acoustical signal: 3 short times 1 long time

### Remarks:

**ZW on:** zone wash valve on = no water on the upper sprayarm.

**ZW off:** zone wash valve off = water on the upper sprayarm.

## Text/Legend

### Test points on the control board

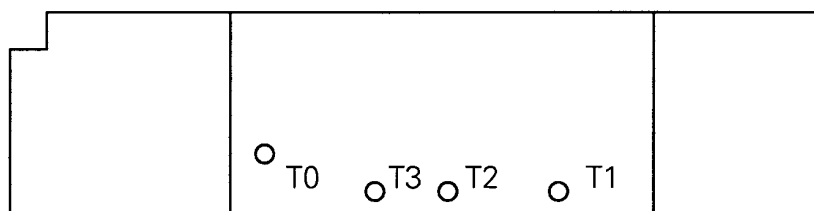
With these test points the function of the buttons can be checked.

The test points are in the service window on the control board.

For the test fine clamps, cables and volt meter with high input resistance are necessary.

**Before setting the clamps on the test points, switch off the appliance.**

Test points: T0 = common line    T2 = analogue value  
                  T1 = analogue value    T3 = digital signal



If the appliance is switched on and the door is open, then there is voltage on the control board (CB) and user board (UB).

### Check: T0 to T1

After closing the door, the voltage is always -5.2 V.

It doesn't matter which button is pushed or not and also it doesn't matter in which position the user board (UB) is (it doesn't matter which program is selected or if the start button is pushed or not).

Exception: pushed zone wash button = - 3.38 V

### Check: T0 to T2

Program button not pushed: - 5.27 V

Program button pushed: - 2.89 V

Start button pushed: - 0.00 V

### Check: T0 to T3:

before start ( start LED off ): - 2.2 V DC

after start ( start LED on ): - 1.8 V DC

How exact the data are, depends on the measure equipment.